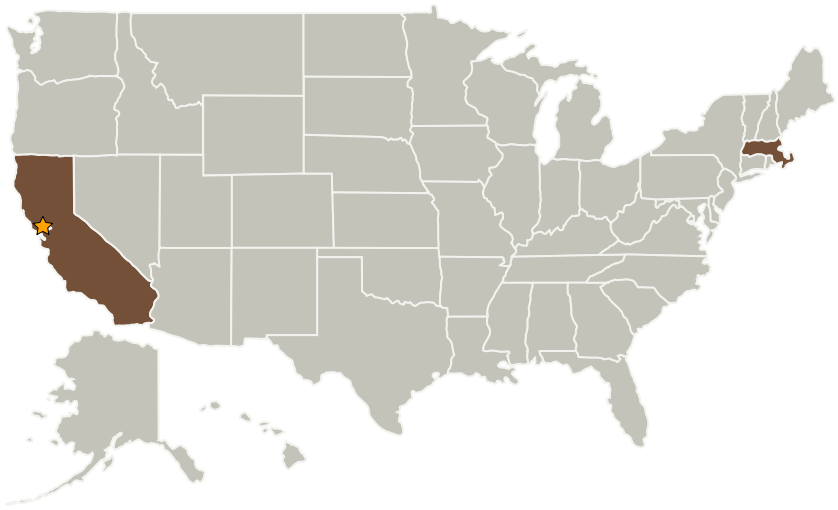
Multispectral Particle Absorption Monitor, Phase II

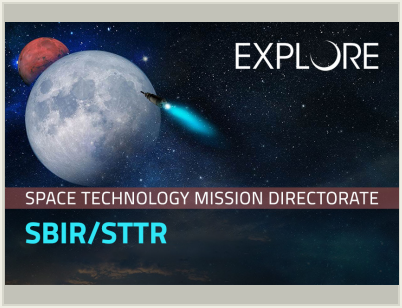
Completed Technology Project (2008 - 2011)

Project Introduction

This Small Business Innovation Research Phase II project concerns the development of a multi-wavelength monitor that will provide rapid, real-time measurement of the average aerosol absorption coefficient in a parcel of sample air. This monitor will employ Aerodyne's patented Cavity Attenuated Phase Shift (CAPS) technology in order to produce a far simpler, smaller, lower cost alternative to more traditional instruments with no loss in sensitivity or accuracy. A unique property of the proposed instrument is that it requires little or no calibration. The Phase II project entails construction a field-ready prototype and deploying the sensor on various field missions undertaken by Aerodyne's particle measurement research group. Aerosol particles affect the radiative balance of the earth directly, by scattering and absorbing solar and terrestrial radiation, and indirectly, by acting as cloud condensation nuclei. The atmospheric loading of aerosols generated through human activities can exert an influence on the earth's radiation budget comparable in magnitude with greenhouse gases. The uncertainties in the current understanding of aerosol direct and indirect forcing limit the ability to quantify human influences on climate change.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Aerodyne Research, Inc	Supporting Organization	Industry	Billerica, Massachusetts

Primary U.S. Work Locations	
California	Massachusetts

Project Transitions

December 2008: Project Start

September 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - TX06.4.1 Sensors: Air, Water, Microbial, and Acoustic